

November 1982

Volume 1

\$2.00

softalk

for the IBM Personal Computer

**LAS
VEGAS
PRIVATE
EYE**

**SNOOPING
IN ROM
EXEC
MICROSOFT**





EXEC MICROSOFT: Young,

by Allan Tommervik

"Microsoft Corporation is the oldest independent supplier of microcomputer software." That's the first sentence of a fact sheet included in a package journalists get when they request information about Microsoft. It's factual enough, but it sure gives new meaning to the word old.

The pyramids are old. The Appian Way is old. Westminster Abbey is old. The Liberty Bell is old. The Erie Railroad is old. Morgan Guaranty Trust is old.

But Microsoft?

Elderly Man River. If Microsoft is old, what does that make IBM? After all, IBM was making computers before the Japanese were making stereo components, calculators, and cars. IBM was in computers when it still took the better part of two days to cross the United States by air. IBM was making computers when the moon was still made of green cheese and had the face of a man carved in it instead of the footprints of man embedded on it. IBM was making computers when gasoline was still less than twenty cents a gallon and the term gas wars applied to your local service station instead of what might happen in the next international imbroglio. IBM was making computers when inflation was what was happening to other countries. IBM was even making computers before Monday Night Football.

Contrast that to Microsoft. When Microsoft started, Watergate

was already history. When Microsoft started, the Beatles had already split up. When Microsoft started, the idea of hippies had already been relegated to the realm of nostalgia. When Microsoft started, the theologians had already killed God off and then decided to resurrect him.

To call Microsoft old goes well beyond the normal bounds of hyperbole. Barely a year ago, there wasn't a soul in the company over thirty. In fact, there might not have been a soul in the company who acknowledged that there were people over thirty. Barely a year ago, some of Microsoft's senior language specialists looked like they needed parental permission to stay out after ten o'clock on Friday night. Microsoft would have been a good place for Atrio to film before and after shaving commercials if only there had been someone to play the role of before.

But, indeed, there are signs of age creeping into the Microsoft organization. This summer Lobo reached inside Microsoft to pluck out Greg Tibbetts to head its software development program. Even as this story was being written, Lotus Development importuned consumer products president Vern Raburn to join them.

In the microcomputer industry, as elsewhere, there's no more sincere form of flattery than recruiting a company's top executives. Objectively, however, nobody goes after the top execs from the new and unproven firms. Companies chase down executives who have,



Old, and Way Ahead

as the idiom goes, a track record. This means, in most cases, they've had to face and solve the problems the recruiting company is now facing and can therefore eliminate the learning curve. To the extent that Microsoft now has a wealth of these problem solvers, it's probably true that Microsoft has an element of maturity lacking in most competitive firms.

He Must Know Somethin'. Yea, even as Lotus, Lobo, and others nip at the heels of Microsoft to strengthen their own management suites, Microsoft has perpetuated a myth of venerability by raiding Tektronix to fill the job of chief operating officer. Shockingly, the individual chosen was not only over thirty, once considered the mandatory retirement age at Microsoft, he's on the brink of turning forty. Some key employees can legitimately call their new CEO "Pops."

How does it come to be that a company can be old in an industry less than ten years in existence? You take a sprinkling of genius and massive doses of seized opportunity, mix liberally with fortuitous happenstances, and then allow it to rise. Instead of making Wonder bread, you use wonder boys. The result is an old company in a young business. The result is also a company that IBM turned to when it needed software help for its Personal Computer.

Actually, crediting Bill Gates and Paul Allen with a sprinkling of genius is probably an understatement of a magnitude analogous to

Microsoft's ancient execs: Jim Towne, who's having fun as the new president; Bill Gates, who kicked himself upstairs so he could pay attention to future products; cofounder Paul Allen, who nurtures the Multi product line; and Steve Ballmer, who recruits the new help and oversees the IBM connection.

calling Kareem Abdul-Jabbar tall. Or the Pacific Ocean wide. Or the weather in Seattle partially cloudy.

By the time the two motive forces in Microsoft had reached their majority, they had badgered the minicomputer industry, helped bail a Fortune 500 company out of a potential forfeit position on a government contract, started their own company, and implemented the first Basic to run on a microcomputer.

In the following eight years, they established their Basic as the bellwether of the microcomputer industry, successfully nurtured a consumer products division, and built an operating system and attendant programmer tools for the IBM pc. Is Bo Derek a 10? Is Ronald Reagan conservative? Are Gates and Allen geniuses?

Gates, by two years the junior partner, and Allen were high school chums at Lakeside High School in the Seattle area. They shared a rabid interest in electronics and computers that found sustenance at Computer Center Corporation, a local firm.

Getting a Charge out of Crashes. The company was in posses-

sion of a Digital Equipment Corporation PDP-10 and was offering free time on the computer to anyone—with one stipulation. The time was to be used attempting to crash the system and, if a system crash was induced, documenting the circumstances. When, since Lucille Ball, was such organized mayhem socially acceptable? Gates and Allen took to the PDP-10 like Ben Franklin took to flying kites.

The pair treated the computer like a cat treats a mouse. They toyed with it, learning the hardware and software inside and out while filling Computer Center's logbook with documented crashes of the system. Tons of fun it was, but the world has yet to witness its first opening for seasoned system-crashers.

The experience stood them in good stead, however, because giant TRW was in dire need of PDP-10 experts. The Cleveland-based government contractor was working on a real-time control system for all power generated by the dam network in the Columbia River basin, including the huge Bonneville Dam. The PDP-10 was the instrument of control.

TRW was suffering from a prolonged software development effort that was plagued by bugs. In fact, the company was nearly to the point of having to yield up forfeiture fees for nondelivery of the system. A worldwide call for PDP-10 experts was sounded, and TRW started scouring every nook and cranny for talented help.

One of their resources was the logbook at Computer Center Corporation, which was chock-full of two names—Gates and Allen. The timing was fortunate. Gates was between his sophomore and junior years in high school and Allen had just graduated. So they signed on for a summer of system repair instead of system crashing—Allen working on failure recovery and Gates plying his talents on data storage.

The Hardy Boys. Indeed, forfeiture was averted with the teenagers playing no little part in avoiding the disaster. But the experience also laid seeds for future endeavors in that the government requirements were so stringent. The contract called for 99.999 percent reliability—a goal well outside the realm of usual computer technology. Gates now grins as he recalls a meeting where the final test was planned:

"To meet the government's requirements, we would be allowed ten seconds of downtime. One of the questions was how to allocate that downtime. The hardware people were talking in terms of minutes if there was a failure; the software people were talking in terms of hours." The test came off without a hitch.

Allen went off to Washington State that fall and Gates returned to high school, but the real-world experience whetted their appetites for more and they began a company called Traf-O-Data. The pair had devised a more efficient method of reading and reporting data generated by those ubiquitous gun-metal gray boxes that sit by the side of the road and extend rubber arms, octopuslike, into the traffic lanes.

The boxes generated paper tape that Traf-O-Data used as input. Several municipalities in the Washington area took on the company's services, but competition, in the form of other government bodies, proved to be too stiff. The state government found itself with systems having excess capacity for reading the tapes and began offering their reading systems to surrounding communities free. *Sic transit gloria*, Traf-O-Data.

By this time, Gates was off to Harvard and Allen, still at WSU, oversaw the demise of Traf-O-Data. Gates was offered summer employment after his freshman year with Honeywell, which was also looking for full-time help. Gates recommended Allen, who crossed the continent to rejoin his partner.

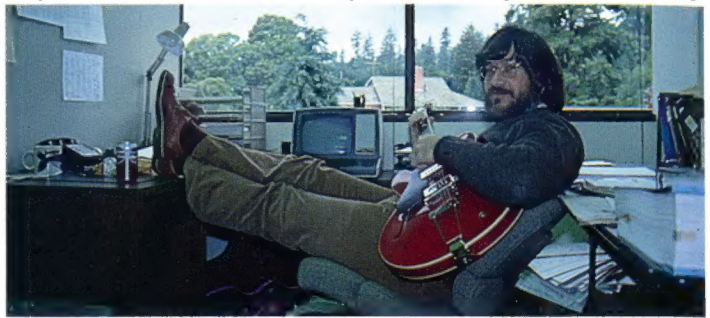
The Chip That Shook the World. Shortly after Gates returned to Harvard the revolution came. The availability of the 8008 microprocessor prompted Allen to propose that the pair develop a Basic language. Gates nixed the idea. Then *Popular Electronics* ran a story about the first microcomputer, which was being developed by

MITS in Albuquerque, New Mexico. The Altair was 8080-driven, and Gates and Allen agreed that here was a chip worthy of their expending language development time.

They called Ed Roberts, developer of the Altair, and offered their services. Roberts was none too encouraging. There were no prototype systems on which they could work. Several groups were well ahead of them in development of a micro-based Basic. On the other hand, Roberts allowed as how it was first come, first served as to whose Basic he would use. And he figured he was at least a month away from getting any language submitted.

Spurred by even that slight chance, the duo went into immediate action. Allen spent two weeks on a PDP-10, developing an Altair simulator and an assembler. Gates spent that time generating design notes on the language. Working on the larger system, it then took them four more weeks to complete their Basic.

They notified Roberts of their success, and he invited them to submit the language. Allen jumped on an airplane to Albuquerque, only to realize in mid-air that they had failed to provide a bootstrap



Private offices allow programmers like Bob Zawalich to kick back during lunch.

loader to insert the language in the machine. He spent the travel time devising one.

Their past experience, working with those impossible reliability requirements on the TRW project, now paid off. Although neither Allen nor Gates had ever seen an Altair, the program ran perfectly on first loading.

Allen returned to his job at Honeywell, but he began badgering Roberts with so many ideas on improvements to their Basic that Roberts finally invited Allen to assume responsibility for Altair's software development.

Clause and Effect. The agreement included a clause stating that MITS would use its best efforts to promote the language development programs Gates and Allen were submitting. That clause remained operative until MITS was purchased by Pertec.

Pertec recognized that the activities of Gates and Allen resulted in products that benefited their mini and micro rivals as well as themselves. At that point, their best effort began to look suspiciously like no effort at all.

Gates and Allen succeeded in extracting the then current version of their Basic from Pertec and formed Microsoft. Finding no further compelling need to locate in Albuquerque, they returned to the Pacific Northwest.

Their continuing language development efforts established Microsoft Basic as the standard for the microcomputer industry. Almost every micro manufacturer provides Microsoft Basic or a kiss-in' cousin. The result has been that Microsoft Basic is the most used software in the world, running on considerably more than one million machines.

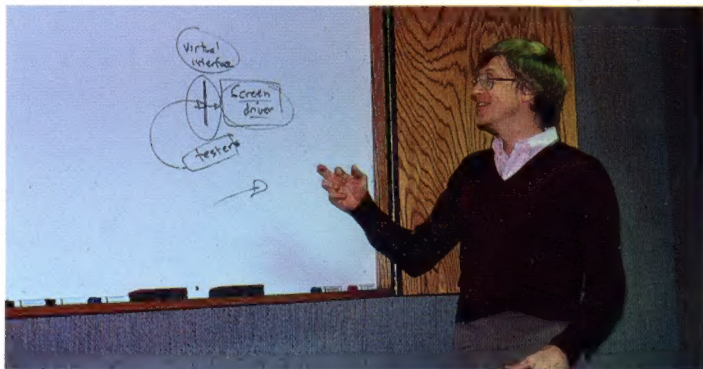
Microsoft's early years were spent essentially farming the original equipment manufacturer market. In 1976 they licensed Basic to such companies as General Electric and National Cash Register. By 1978, they added the two main contenders in the early microcomputer market—Tandy and Apple. During this period, they had also developed Fortran-80, Cobol-80, and Basic-86.

Dynamic Duo. Allen and Gates developed a synergistic working relationship during that time. Allen remained deeply involved in the development of new software tools while Gates remained involved in farming the OEM marketplace and in running the general day-to-day activities of the company.

In summer 1979, Microsoft announced the establishment of a consumer products division and selected Vern Raburn as president. While the OEM division was licensing Unix from Bell Labs and starting work on their micro version, Xenix, Raburn was presiding over the introduction into the marketplace of such bestselling software as *Microsoft Adventure* and *Typing Tutor*.

The biggest hit of the consumer products division, however, was a hardware solution to a software problem.

Allen was becoming more and more frustrated with what might be called the tyranny of hardware. His group had provided significant tools for the Z-80 end of the microcomputer market, and a substantial body of applications software had been developed by inde-



Gates explains the development philosophy behind the Multi product line.

pendent software vendors using those tools.

On the periphery of this activity was the Apple market, growing daily and inaccessible to Allen's tools or the programs they produced. Just as Allen was the goad that first proposed implementing Basic on a microprocessor, he now began proposing a revolutionary new hardware product, one that would permit 8080 software to run within Apple's 6502 environment.

Allen correctly perceived that it would be far less expensive and far more efficient to find a hardware solution than it would be to translate all 8080 software into 6502 code. The resulting product—the Microsoft SoftCard—stands as revolutionary in two respects:

First, it was the first significant step in freeing software developers from the tyranny of hardware designers. Current imitations such as the Baby Blue card bringing CP/M to the pc and Alpha Software's Apple-IBM Connection sing paeans of praise to Allen's insight.

Second, the SoftCard's popularity in the Apple market became so great that Apple is now the microcomputer with the largest base of CP/M users, even though the native 6502 environment is hostile to the CP/M operating system.

Cheesy Broadcast. Allen's SoftCard success sent a clear message to hardware manufacturers: the world will no longer beat a path to the door of the maker of a better mousetrap, but they'll sure pound on the door of the fellow with a better brand of cheese.

That message was heard loud and clear in Boca Raton, Florida. There IBM was plotting its entry into the microcomputer marketplace. One thing that Big Blue is renowned for is recognition of human resources. Kitty-corner across the continent in the Pacific Northwest there was clearly a reservoir of talent to be tapped. Not only was Microsoft Basic the standard for micros, Microsoft as a company had doubled in sales in each year of its existence. Big Blue likes that sort of track record.

So it came to pass that the mountain went to Mohammed.

Microsoft is accustomed to working in the future in the sense

that its language development is mostly done before a machine hits the market. But never had the company been called upon to deliver into the future such a broad spectrum of products.

IBM didn't want just Basic. They wanted Basic, Cobol, Fortran, and Pascal. They wanted programmer tools like the *Macro Assembler*. They wanted useful programs like *Typing Tutor* and more frivolous software like *Adventure*.

But first and foremost, IBM wanted an operating system.

Could there be any doubt that Microsoft could respond? It's probably easier to grow bananas on the tundra than to define a software task Microsoft can't do.

Three Ring Circus. The operating system closed the loop, making Microsoft the first total-package software house. Microsoft now defines the operating environment, makes software tools and languages for software vendors writing in that environment, and markets various products for the end user. No other software developer houses all three activities—operating systems, software development tools, and end user products.

Needless to say, closing that circle brought concomitant growth and additional stress to the organization. Bearing the brunt of much of that stress has been Microsoft veteran Steve Ballmer.

Ballmer had an applied mathematics degree from Harvard and was attending Stanford's business school when Gates beckoned him to be special assistant to the president. Subsequently, Ballmer has acted as a roving executive, serving where the need was the greatest.

For a time, that was as general manager of the consumer products division. Now Ballmer is vice president for corporate staffs. As such he's managed the logistics of Microsoft's move into a new facility of their own during the last twelve months, conducted the recruiting efforts that have maintained Microsoft's high caliber of employees, and served as the account executive for IBM.

Clearly, Ballmer's activities representing Microsoft to IBM are of no trivial consequence to the company. But the action he's taken that will have the most direct influence on the future of Microsoft was when he set in motion the search for a new president.

It is not easy to find a competent lunatic. And lunatic you'd have to be to covet the presidency of Microsoft. It's as close to a no-win situation as any since Custer decided he had Sitting Bull outgunned.

Under the guidance of Gates, who makes no pretense of wanting to be a strong chief executive, Microsoft had doubled in sales every year. That meant that last year was worth about sixteen million dollars. It's not easy to follow a genius. Clearly, Ballmer had no easy chore in finding somebody qualified for the challenge who wouldn't quail at the risk.

The Greatest Show on Earth. By this time it should be clear that Microsoft doesn't do things in a small way. When they set out to make a piece of hardware, it turned Apple into the biggest base of CP/M users. When they set out to do an operating system, they didn't do it for Allied Nobody, nor even for Tandy, but for IBM.

So it seems natural in retrospect that they sought out Jim Towne, who only ran a division of Tektronix some three to five hundred times as big as Microsoft. What the actual ratio was will never be known, because Tektronix is so taciturn about its finances that it makes Hughes Aircraft appear garrulous in comparison. But Tektronix is a billion-dollar company and Towne was vice president and general manager of the instruments division, the largest in the company.

Not even Towne can be explicit about all the elements that made the Microsoft opportunity attractive, but he's clearly not a man taken leave of his senses. The now-departed Raburn says, "Towne was born for Microsoft."

Towne was the kind of youthful achiever other kids hated to be compared to. A Boy Scout, outstanding student, track athlete. Same story at Stanford, where he collected a couple of degrees.

Towne went back home from Stanford to join Tektronix. Maybe he had it too easy there. In twelve years he went from nobody to

vice president and general manager of Tektronix's largest division. Not that it was all that easy. When he made a set of relatively innovative suggestions to top management, they didn't stifle him; they said, "Okay, Towne, put up or shut up," and put him in charge. It's not easy to put your money where your mouth is, especially not when some of your peers are just waiting for you to come up a day late or a dollar short. Jim Towne never did.

But Towne does call Microsoft "exciting," perhaps an element missing at Tektronix, although he's never indicated as much, even by inference.

Towne has a clear vision of his role at Microsoft—a vision that sometimes takes the form of *deja vu*. "This is the critical time for this company. It's my job to shepherd it through the stage from twenty to sixty million dollars in sales. That's the stressful time."

Then he muses that "Maybe I've been trained for stress. I'm not a software guy, but I enjoy this company . . . helping solve their industrial problems. All the structures get different in bigger companies, but we have to recognize that to bright people, big is not beautiful."

Bright people are indeed who Towne is working with. Ballmer seeks out only those folks who appear to be in the upper 5 to 10 percent in energy and intelligence to work at Microsoft.

Keep Your Bright Ideas to Yourself. But even bright people can stumble when trying to think through a problem that's new to them. At Tektronix, Towne confronted and reasoned through many of the problems now facing Microsoft, such as the advisability of opening foreign markets and which key to use if such a market is to be unlocked.

Towne's advent has created changes, the most obvious of which is that Gates is now free to pursue technical matters. Gates is now chairman of the board and executive vice president, focusing particularly on product design. Allen remains an executive vice president, managing the Multi line of products and operating systems.

Gates is the man at Microsoft with the clearest vision of the future. The company is putting the finishing touches on the next version of MS-DOS, which will be a free update to owners of prior versions. Features include interrupt ability, background printing, and background communications.

Microsoft is preparing a multitasking—concurrent processing—version of DOS, but Gates is clearly not convinced that this is the wave of the future. He leans more to the line of thought that holds that networking—multiple users sharing expensive peripherals—is more valuable. Xenix is the Microsoft answer.

The company is making a big splash with *MultiPlan*, the electronic spreadsheet that is the first of "perhaps a dozen" Multi packages to be released in the next year. *MultiPlan* was finished nearly two years ago, but extensive beta testing and perfecting of the software tools to make the product instantaneously available across a wide range of machines held up release. In spite of plans for several other products to follow, Gates avers that Microsoft is not going after what he refers to as the applications software market.

He explains that the key to developing applications software is "understanding the problem domain," while the products Microsoft is developing are generic. Gates sees continued use by software publishers of Microsoft tools and operating systems and points to Microsoft's involvement in generic products as a way to find holes in the operating system and plug them. "If the operating system isn't strong enough, it limits the independent software vendor. Having visibility of all the elements is the key to strengthening the operating system."

Not the Final Word. Gates does not rule out more hardware answers to software problems, such as the SoftCard. He also believes there'll be more hardware-software combination answers to problems in such areas as communications.

Gates sees enhanced graphics as the most notable improvement in the next generation of software. "The hardware isn't going to get

any easier to use. It's crucial to new software techniques that the graphical element be superenhanced. Software developers have a big job to do."

While Gates has been shucking executive responsibilities to get more involved on the technical side, Allen has found more and more of his time spent in management and less in hands-on technical work.

Allen takes his change philosophically, pointing out that it's a matter of leveraging the time. By contributing to design and supervising implementation, more of his abilities are applied for Microsoft's benefit than if he specialized.

But as befits the mind that conjured up an Altair simulator without an Altair in hand and a SoftCard to expand the software horizons, Allen still gets more excited about new ideas, new concepts, and new challenges.

He points out that Microsoft's expanded product line puts them into some of the most competitive marketplaces in the world, a challenge he clearly relishes. Developing and using the tools that enable the company to bring out a usable, powerful product in different environments simultaneously is a cherished goal.

Allen believes machines similar in concept to the Xerox Star but costing a fraction of the \$70,000 asking price will be available within a few years, and he thinks Microsoft's expanded product line will be ready to take advantage of that machine when it arrives.

Sea Wolves. His group continues to develop software in C on larger systems for downloading to the host systems after completion. Pascal was used for development of the languages for the IBM Personal Computer, but other development reflects Allen's preference for C.

For all of the progress Allen sees in the microcomputer industry, there's one nettle in the rosebush. "I've been disappointed that no viable, low-cost networking technology is available." He can cite chapter and verse on the difficulties of executing such a system, which might indicate that he's working on a solution.

New products and new ideas abound at Microsoft, but all the executives remain cautious of quality standards. Ballmer and Towne both praise Gates for his unwillingness to let any product be released until it's as perfect as they can make it. In that regard Ballmer likens Gates's thinking to that prevalent within IBM.

"IBM is, if anything, more exacting on themselves than on us," says Ballmer. "They never make a dumb decision and they always choose the quality alternative. They've got a long-term view of the market and won't allow a poor product that would affect their long-range future." Ballmer says Gates is even tougher on quality standards, if that's possible.

Microsoft now has more than two hundred employees, most of them recruited by Ballmer, who says, "We still have a high ratio of technical to nontechnical people here. This is run more like a research lab."

Almost everyone at Microsoft has a private office, and leadership on a given project stems not from seniority or title but from knowledge of the requirements.

The Success Express. Towne is convinced the company is on the right track. "More than 50 percent of our effort is going into new products." With that in mind, Towne is tackling building a more powerful and decisive marketing entity that can support those new products. "We'll be working hard to differentiate our products in the marketplace."

To that end, Towne gets out of his chair and into computer stores where he can witness firsthand what the end user feels about his new company.

What Towne feels about Microsoft is apparent as he sums up his legacy from the founders: "There's almost an innate wisdom about this place. 'Hire good people.' 'Don't grow too fast.' 'Don't introduce product too soon.' This job is fun and there's no politics." ▲